

Remarks

In view of the following remarks, favorable reconsideration of the office action is respectfully requested. Claims 1-35 remain in this application. New claims 36-38 are added. No new matter has been added. Claims 36-38 are supported by the Specification at pages 18-19.

1. Non-statutory Double Patenting Rejections

The Examiner has rejected claims 1-35 under the judicially created doctrine of obviousness type double patenting in view of claims 1, 5-19 and 42 of U.S. Application No. 09/411,936. The 09/411,936 parent application is now believed to be abandoned. These rejections are respectfully traversed.

2. §103 Rejections

The Examiner has rejected claims 1-35 under 35 U.S.C. §103 as being unpatentable for obviousness over U.S. Patent No. 5,821,513 to O'Hagan et al. (hereinafter O'Hagan) in view of U.S. Patent No. 6,034,379 to Bunte et al. (hereinafter Bunte).

According to the **MPEP §2143**, three basic criteria must be met to establish a *prima facie* case of obviousness. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all of the claim limitations. All of the claim limitations must be taught or suggested by the prior art. *In re Royka*, 490 F.2d 981, MPEP 2143.03. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, not in applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991).

According to the **MPEP §707.07(d), Improperly Expressed Rejections**, An omnibus rejection of the claim "on the references and for the reasons of record" should be avoided and a plurality of claims should never be grouped together in a common rejection, unless that rejection is equally applicable to all claims in the group.

Under **37 C.F.R. §1.104(c)(2)** Nature of examination, Rejection of claims, In rejecting claims for want of novelty or for obviousness, the examiner must cite the best references at his or her command. When a reference is complex or shows or describes inventions other than that claimed by the applicant, the particular part relied on must be designated as nearly as practicable. The pertinence of each reference, if not apparent, must be clearly explained and each rejected claim specified.

A. This rejection is believed to be improper as an "improperly expressed rejection" in the form of an omnibus rejection as prohibited by MPEP §707.07(d). Contrary to this provision of the MPEP, the Examiner presents the rejection of claims 1-35 as a single free flowing list in a single paragraph, paragraph 5 of the Office Action:

5. Claims 1-35 are rejected under 35 U.S.C. §103(a) as being unpatentable over O'Hagan et al 5,821,513 and Bunte et al 6,034,379. O'Hagan discloses in figure 4 as described in column 6 line 20 — column 7 line 27, a scanning mechanism including a two dimensional photo sensing array 170 mounted on a circuit board 146. Also disclosed are illumination means 44 including LED's 180, targeting LED's 188,186 mounted on circuit board 146 which project targeting beams through an aperture in board 189. There is disclosed an image processor 120 mounted on the circuit board. As seen in the figure, the entire circuit board apparatus is enclosed and mounted within a housing including back and sidewalls 162. O'Hagan discloses that his elements are mounted on four circuit boards, not a single circuit board as claimed when interpreted in lights of applicants' disclosure. Bunte discloses in figures 19, and in column 28 lines 22+ an imaging module with an illuminator array 1947 and a sensor assembly 1949 on a single circuit board 1967. It is disclosed in column 27 lines 35+ that the sensor assembly comprises a photo array 1929 that captures a 2-D image of the code being imaged. It is disclosed in column 27 lines 7+ that the illuminator is a LED array, *i.e.* a plurality of individual light sources. These LED's illuminate and therefore are functional to aim the imaging sensor. There are disclosed elements 1973,1975,1977,1979 for mounting the circuit board within the larger housing of the imaging sensor, *i.e.* framework and housing. There is disclosed a planar optical element as window 1919. It would have been obvious to one of ordinary skill in the art at the time of the invention to mount the elements of O'Hagan on a single circuit board as taught by Bunte. As disclosed by Bunte in column 28, lines 25+, the single circuit board permits other types of inter-working sensor lens systems and illuminator combinations to be collocated for further optical alignment or combined scanning motion. O'Hagan does not disclose the specific housing details as claimed of the "linger" mounting as claimed. Mounting "fingers" remain old and well known, as are "recesses" and alignment means in electronic equipment enclosing circuit boards. It would have been obvious to one of ordinary skill in the art at the time of the invention to mount the board of O'Hagan using mounting "fingers" and providing "recesses" for

alignment in the housing of O'Hagan. This would reduce the cost of mounting while providing for a physically secure package. (Office Action, paragraph 5).

There are no specific indications as to which claim the references cited by the Examiner are directed to. (Office Action, paragraph 5). Moreover, the pertinence of each reference, if not apparent, must be clearly explained and each rejected claim specified. (37 C.F.R. §1.104(c)(2)). Since no claim numbers are given, it is not apparent what the pertinence of O'Hagan or Bunte is. As presented by the Examiner, the rejection is incomplete, vague, and impossible to reply to with any specificity. Therefore, applicants are unable to positively correlate the various sentences of the rejection with specific claims. The comments that follow are based on applicants' best attempts to match aspects of the rejection to the present set of claims by associating common words or phrases.

A combination of prior art reference must teach or suggest all the claim limitations for an obviousness rejection. *In re Royka*, 490 F.2d 981, MPEP §2143.03. As presented in detail in the pages that follow, many claim limitations have not been considered by the Examiner and are not discussed in the one paragraph obviousness rejection. (Office Action, paragraph 5). These rejections are believed to be improper as they do not address all of the claim limitations.

Claim 1 is directed to an optical reader comprising: a printed circuit board; a image sensor mounted on said printed circuit board, said image sensor having a field of view, said image sensor adapted to generate an electrical signal representative of the field of view of said image sensor; a signal processing circuit disposed to receive said electrical signal from said image sensor, said signal processing circuit mounted on said printed circuit board; an image capture circuit adapted to receive electrical signal from said signal processing circuit and store said electrical signal, said image capture circuit mounted on said printed circuit board; an image recognition circuit coupled to said image capture circuit, said image recognition circuit mounted on said printed circuit board; a light source mounted on said printed circuit board, said light source disposed to illuminate at least a portion of the field of view of said image sensor; and a control circuit coupled to both said image sensor and said light source; wherein said control circuit is adapted to control the operation of said image sensor; and wherein said control circuit is adapted to control the operation of said light source.

Regarding claim 1, at least four of the claim 1 limitations do not appear anywhere in the rejection. Claim 1 calls for a "signal processing circuit". The rejection does not consider a "signal processing circuit" limitation. Claim 1 also calls for an "image capture circuit". The rejection does not consider an "image capture circuit". Claim 1 also calls for an "image recognition circuit". The rejection does not consider an "an image recognition circuit". Claim 1 also calls for a "control circuit". The rejection does not consider a "control circuit". With respect to independent claim 1, the Examiner has not found all of the limitations of the claim in the cited references. Without an indication of all of the limitations of the claim, an obviousness rejection is improper. Therefore, applicants respectfully traverse the rejection.

Regarding another important aspect of the instant invention as claimed in claim 1, the components as described above and claimed in claim 1 are mounted on a single printed circuit board. Applicants agree with the Examiner's assertion that "O'Hagan discloses that his elements are mounted on four circuit boards, not a single circuit board". As stated by the Examiner, O'Hagan teaches that convention in the art is to use a plurality of interconnected circuit boards, "Conventionally available circuitry on printed circuit boards 174, 176, and 146". (O'Hagan, col. 6, lines 62-62). The Examiner's reference to O'Hagan suggests that one skilled in the art would plan a design according to this convention. O'Hagan thus teaches away from the instant invention by teaching the use of multiple circuit boards.

As was pointed out by the Examiner in Chinese Application No. 00815975.0 filed October 4, 2000, corresponding to the parent application of the present application, commonly owned U. S. Patent No. 5,837,985 to Karpen, which has been considered by the Examiner, has teachings relating to the incorporation of an image sensor and light sources on a single printed circuit board. Such teachings are also included in U. S. Patent No. 5,780,834 to Havens which has also been considered by the Examiner. However, there are numerous distinctions between the present claims over the art to Havens and Karpen and over the art specifically referred to in the Examiner's rejection.

The instant invention solves a number of problems associated with the prior convention of assembling instruments comprising a plurality of interconnected circuit boards. Some of the many problems associated with multiple board construction are time of assembly, additional cost, extra electrical connections, and large size. (Specification, page 1, lines 17-25). The instant invention solves these problems. (Specification, page 11, lines 9 to page 13, line 15). Printed circuit board ("PCB") 14, the single circuit board, also includes the illumination elements. (Specification, page 11, lines 9-12). Previously [as the Examiner has shown in O'Hagan], the illumination elements and image sensing elements were spread out over several circuit boards. (Specification, page 11, lines 12-15). All of the data processing functions are also included on PCB 14. (Specification, page 11, line 28 to page 12, line 5). Circuitry for supporting serial transfers is also included on PCB 14. (Specification, page 12, lines 5-7). In the prior art, these functions were spread over a plurality of circuit boards. (Specification, page 12, lines 14-20). Another advantage of the single PCB in the present invention is that it lends itself to simpler assembly into smaller spaces. (Specification, page 12 line 21 to page 13, line 4). Further, the shape and configuration of modules comprising the single PCB can be smaller and offer superior mechanical mounting arrangements. (Specification, page 13, line 16 to page 14, line 2). The single PCB 14 solves problems related to shipping sub assemblies where assembly is carried out at multiple facilities. (Specification, page 14, lines 3 to 20). These are but a few of the problems solved by the inventions use of a single PCB as opposed to the conventional use of multiple PCBs in the prior art as taught by O'Hagan. Since the Examiner shows that O'Hagan does not contemplate the use of a single circuit board, it can be seen that there is no suggestion, teaching, or motivation any where in O'Hagan that would lead one skilled in the art to mount all of the components of claim 1 on a single printed circuit board.

The Examiner's assertion that Bunte discloses a single board code reader is believed to be factually incorrect: The Examiner turns to Bunte as somehow relating to the single board solution:

“It would have been obvious to one of ordinary skill in the art at the time of the invention to mount the elements of O’Hagan on a single circuit board as taught by Bunte”. (Office Action, paragraph 5).

This assertion appears to indicate that the Examiner believes that Bunte discloses a single board embodiment the code reader. The reliance on Bunte with regard to the single board limitation of the instant invention is perplexing at best. The Examiner refers applicants to Fig. 19 just before making the erroneous connection to the single board limitation of claim 1. Bunte’s Fig. 19A clearly shows multiple circuit boards 1911, 1915, and 1913, according to the conventional teaching of O’Hagan. Bunte’s Fig. 19B shows a total of five separate circuit boards, Fig. 19C shows two circuit boards, and Fig. 19 D shows three boards. Bunt’s Figs. 20A-D show three separate circuit boards. Bunt’s Figs. 24B-D show three boards and Fig. 25 shows some additional detail of one of the subassembly boards used in the conventional plurality arrangement taught by both O’Hagan and Bunte.

The Examiner cites to Bunte “col. 28, lines 22+” with reference to the term “single board”. This type of open ended reference is believed to be improper as it leaves applicants having to guess what part of Bunte from col. 28, line 22 to col. 37, line 47 the Examiner finds significant. If the Examiner is referring to Bunte’s use of the phrase “single assembly 1967” (Bunte, col. 28, lines 28 to 29), Fig. 19C clearly shows that the 1967 assembly is one of a plurality of boards in a code reader designed according to the conventional multi-board teachings of both O’Hagan and Bunte.

Applicants are unable to find any reference whatsoever to a complete single board code reader in Bunte. Bunte does not disclose or nor does Bunte contemplate the use of a single circuit board reader. Therefore there is no suggestion, teaching, or motivation in Bunte that would lead one skilled in the art to mount all of the components of claim 1 on a single printed circuit board.

Regarding claim 2, since dependent claim 2 incorporates the limitations of the claim from which it depends, claim 2 is also not rendered obvious by the references for the same

reasons as stated with respect to claim 1. That is, claim 2 is believed allowable at least for the reason that it depends from an allowable base claim.

Claim 2 is also believed allowable for reasons in addition to its dependency on claim 1. Claim 2 calls for the light source of claim 1 to be configured to project a single aiming line. The aiming line of the invention is created by light from the LED mounted on the common PCB shining through an aperture slit. (Specification, page 9, lines 5-14).

The Examiner states that Bunte discloses:

in column 27 lines 7+ that the illuminator is a LED array, i.e. a plurality of individual light sources. These LED's illuminate and therefore are functional to aim the imaging sensor. (Office Action, paragraph 5).

Within the Examiner's reference range, at col. 27, line 7, an array of LED lamps is mounted on one of a *plurality of circuit boards*. Applicants' are unable to find any reference to a single aiming line caused by illumination from fixed LEDs on a one PCB bar code reader.

Since the sections outlined by the Examiner only show that Bunte's LEDs are not mounted on a common PCB and do not cause an illuminated line for aiming purposes, this cite to Bunte does not teach, suggest, or motivate one skilled in the art towards the projection of a single aiming line. All of the claim limitations must be taught or suggested by the prior art. *In re Royka*. The Examiner has not been able to find the "single aiming line" limitation of claim 2 in Bunte. Therefore claim 2 is not rendered obvious by Bunte.

When a rejection is made based on obviousness and a reference is complex and shows or describes inventions other than that claimed by the applicant, *the particular part of the reference relied upon must be designated as nearly as practicable*. (emphasis added) 37 CFR §1.104(c)(2). The Examiner relies on the alleged teaching of Bunte or O'Hagen relating to "light source of claim 1 to be configured to project a single aiming line" in maintaining that Bunte is combinable with O'Hagen; yet, contrary to the express provisions of 37 CFR

§1.104(c)(2) makes no effort to specifically designate the purported section of Bunte or O'Hagan relating to "light source of claim 1 to be configured to project a single aiming line."

If the Examiner wishes to continue this rejection of claim 2, the Examiner is respectfully requested to specifically point out the section of Bunte or O'Hagan, alleged to be present, relating to "a source of claim 1 (a single PCB bar code reader) to be configured to project a single aiming line." If the Examiner cannot designate such a teaching in Bunte or O'Hagan, the Examiner is respectfully requested to withdraw the rejection of claim 2 over the combination of O'Hagan and Bunte.

Claim 3 is directed to An optical reader comprising: a mounting frame, said mounting frame including: a back plate; and four sidewalls extending outwards from said back plate; wherein said back plate and said four side walls define an interior volume; and wherein said back plate defines a plurality of openings; a printed circuit board coupled to said back plate, wherein said printed circuit board is external to said interior volume; an image sensor mounted on said printed circuit board, said image sensor disposed such that the field of view of said image sensor faces said interior volume; a light source disposed within said interior volume, said light source mounted on said printed circuit board; a control circuit for controlling the operation of said image sensor and said light source, said control circuit disposed on said printed circuit board, said control circuit coupled to said light source and said image sensor; a signal processing circuit disposed to receive an electrical signal from said image sensor, said signal processing circuit mounted on said printed circuit board; an image capture circuit adapted to receive the electrical signal from said signal processing circuit and store said electrical signal, said image capture circuit mounted on said printed circuit board; and an image recognition circuit coupled to said image capture circuit, said image recognition circuit mounted on said printed circuit board.

Regarding independent claim 3, claim 3 is believed to be allowable for the same reasons as stated by applicants with regard to claim 1. At least three of the claim 3 limitations do not appear anywhere in the rejection. Claim 3 calls for a "signal processing circuit". The rejection does not consider a "signal processing circuit" limitation. Claim 3 also calls for an "image capture circuit". The rejection does not consider an "image capture circuit". Claim 3 also calls for a "control circuit". The rejection does not consider a "control circuit". With respect to independent claim 3, the Examiner has not found all of the limitations of the claim in the cited references. Without an indication of all of the limitations

of the claim, an obviousness rejection is improper. Therefore applicants respectfully traverse the rejection.

Moreover, with respect to claim 3, the missing limitations and other components are disposed on a single common circuit board.

O'Hagan discloses that his elements are mounted on four circuit boards, not a single circuit board as claimed when interpreted in lights of applicants' disclosure. (Office Action, paragraph 5).

As the Examiner states, O'Hagan discloses and teaches the conventional use of multiple circuit boards.

As previously discussed in detail with regard to claim 1, applicants are unable to find any reference whatsoever to a single board code reader in Bunte.

When a rejection is made based on obviousness and a reference is complex and shows or describes inventions other than that claimed by the applicant, *the particular part of the reference relied upon must be designated as nearly as practicable.* (emphasis added) 37 CFR §1.104(c)(2). The Examiner relies on the alleged teaching of Bunte relating to a bar code reader including the limitations of claim 3 on a common PCB in maintaining that Bunte is combinable with O'Hagan; yet, contrary to the express provisions of 37 CFR §1.104(c)(2) makes no effort to specifically designate the purported section of Bunte relating to a bar code reader including the limitations of claim 3 on a common PCB.

If the Examiner wishes to continue this rejection of claim 3, the Examiner is respectfully requested to specifically point out the section of Bunte, alleged to be present, relating to a bar code reader including the limitations of claim 3 on a common PCB. If the Examiner cannot designate such a teaching in Bunte, the Examiner is respectfully requested to withdraw the rejection of claim 3 over the combination of O'Hagan and Bunte.

Regarding claim 4, since dependent claim 4 incorporates the limitations of the claim from which it depends, claim 4 is also not rendered obvious by the references for the same

reasons as stated with respect to claims 1 and 3. That is, claim 4 is believed allowable at least for the reason that it depends from an allowable base claim.

Claim 4 is also believed allowable for reasons in addition to its dependency on claim 3. Claim 4 calls for the optical reader of claim 3 wherein the reader further includes an optics lens assembly coupled to the back plate. The Examiner has shown no such structure in either O'Hagan or Bunte. Therefore neither O'Hagan nor Bunte render claim 4 obvious.

When a rejection is made based on obviousness and a reference is complex and shows or describes inventions other than that claimed by the applicant, *the particular part of the reference relied upon must be designated as nearly as practicable.* (emphasis added) 37 CFR §1.104(c)(2). The Examiner relies on the alleged teaching of Bunte or O'Hagan relating to "an optics lens assembly coupled to the back plate" in maintaining that Bunte is combinable with O'Hagan; yet, contrary to the express provisions of 37 CFR §1.104(c)(2) makes no effort to specifically designate the purported section of Bunte or O'Hagan relating to "an optics lens assembly coupled to the back plate".

If the Examiner wishes to continue this rejection of claim 4, the Examiner is respectfully requested to specifically point out the section of Bunte or O'Hagan, alleged to be present, relating to "an optics lens assembly coupled to the back plate". If the Examiner cannot designate such a teaching in Bunte or O'Hagan, the Examiner is respectfully requested to withdraw the rejection of claim 4 over the combination of O'Hagan and Bunte.

Regarding claim 5, since dependent claim 5 incorporates the limitations of the claim from which it depends, claim 5 is also not rendered obvious by the references for the same reasons as stated with respect to claims 1 and 3. That is, claim 5 is believed allowable at least for the reason that it depends from an allowable base claim.

Claim 5 is also believed allowable for reasons in addition to its dependency on claims 3 and 4. Claim 5 calls for the optical reader of claim 4 further including: a diffuser plate

engageable with at least two of said four side walls; and an aiming lens aperture plate disposed between said diffuser plate and said back plate. The Examiner fails to show where either O'Hagan or Bunte disclose or teach a diffuser plate, an aiming lens aperture plate, and a back plate. Therefore neither O'Hagan nor Bunte render claim 5 obvious.

When a rejection is made based on obviousness and a reference is complex and shows or describes inventions other than that claimed by the applicant, *the particular part of the reference relied upon must be designated as nearly as practicable.* (emphasis added) 37 CFR §1.104(c)(2). The Examiner relies on the alleged teaching of Bunte or O'Hagan relating to "a diffuser plate, an aiming lens aperture plate, and a back plate" in maintaining that Bunte is combinable with O'Hagan; yet, contrary to the express provisions of 37 CFR §1.104(c)(2) makes no effort to specifically designate the purported section of Bunte or O'Hagan relating to "a diffuser plate, an aiming lens aperture plate, and a back plate".

If the Examiner wishes to continue this rejection of claim 5, the Examiner is respectfully requested to specifically point out the section of Bunte, alleged to be present, relating to "a diffuser plate, an aiming lens aperture plate, and a back plate". If the Examiner cannot designate such a teaching in Bunte or O'Hagan, the Examiner is respectfully requested to withdraw the rejection of claim 5 over the combination of O'Hagan and Bunte.

Claim 6 calls for the optical reader of claim 5 wherein said light source includes a plurality of light sources. Regarding claim 6, since dependent claim 6 incorporates the limitations of the claim from which it depends, claim 6 is also not rendered obvious by the references for the same reasons as stated with respect to claims 3, 4, and 5. That is, claim 6 is believed allowable at least for the reason that it depends from an allowable base claim.

Claim 7 calls for the optical reader of claim 6 wherein said plurality of light sources includes a plurality of light emitting diodes. Regarding claim 7, since dependent claim 7 incorporates the limitations of the claim from which it depends, claim 7 is also not rendered obvious by the references for the same reasons as stated with respect to claims 3, 4, 5 and 6.

That is, claim 7 is believed allowable at least for the reason that it depends from an allowable base claim.

Regarding claim 8, since dependent claim 8 incorporates the limitations of the claim from which it depends, claim 8 is also not rendered obvious by the references for the same reasons as stated with respect to claims 3-6. That is, claim 8 is believed allowable at least for the reason that it depends from an allowable base claim.

Claim 8 is also believed allowable for reasons in addition to its dependency on claim 6. Claim 8 calls for the optical reader of claim 6 wherein said image sensor is a solid state image sensor and said back plate defines a recess for receiving said solid state image sensor. The Examiner fails to show that either O'Hagan or Bunte discloses or teaches a back plate defining a recess for receiving said solid state image sensor. Therefore neither O'Hagan nor Bunte render claim 8 obvious.

When a rejection is made based on obviousness and a reference is complex and shows or describes inventions other than that claimed by the applicant, *the particular part of the reference relied upon must be designated as nearly as practicable.* (emphasis added) 37 CFR §1.104(c)(2). The Examiner relies on the alleged teaching of Bunte or O'Hagan relating to "a back plate defining a recess for receiving said solid state image sensor" in maintaining that Bunte is combinable with O'Hagan; yet, contrary to the express provisions of 37 CFR §1.104(c)(2) makes no effort to specifically designate the purported section of Bunte or O'Hagan relating to "a back plate defining a recess for receiving said solid state image sensor".

If the Examiner wishes to continue this rejection of claim 8, the Examiner is respectfully requested to specifically point out the section of Bunte or O'Hagan, alleged to be present, relating to "a back plate defining a recess for receiving said solid state image sensor". If the Examiner cannot designate such a teaching in Bunte or O'Hagan, the Examiner is respectfully requested to withdraw the rejection of claim 8 over the combination of O'Hagan and Bunte.

Regarding claim 9, since dependent claim 9 incorporates the limitations of the claim from which it depends, claim 9 is also not rendered obvious by the references for the same reasons as stated with respect to claims 3-6. That is, claim 9 is believed allowable at least for the reason that it depends from an allowable base claim.

Claim 9 calls for an optical reader of claim 6 wherein at least one of said at least two of said at least four sidewalls includes a resilient finger engageable with said diffuser plate. The Examiner, while making no reference to claim 9, appears to address one of the limitations of this claim at the end of paragraph 5:

Mounting "fingers" remain old and well known, as are "recesses" and alignment means in electronic equipment enclosing circuit boards. It would have been obvious to one of ordinary skill in the art at the time of the invention to mount the board of O'Hagan using mounting "fingers" and providing "recesses" for alignment in the housing of O'Hagan. (Office Action, paragraph 5).

The Examiner's conclusory statement that a limitation including "fingers" or "recesses" is "well known" is not an acceptable substitute for finding the limitation in the prior art. Applicant's challenge this assertion as improper and request that the statement be supported by an adequate showing of the limitation in the prior art. (Applicant Challenges, MPEP §2144.03 C). An important error regarding the Examiner's assertion is that the limitation is to "resilient fingers that are engageable with the diffuser plate". Mere reference to the word "fingers" conjures an association with a great variety of dictionary definitions of the word, many having nothing whatsoever to do with any of the applicant's claim limitations. In fact, the assertion regarding the word finger might refer to a meaning of the word that has nothing to do with the instant claim limitation. Therefore applicants respectfully demand that the Examiner produce authority in the form of prior art regarding to any assertion pertaining to "resilient fingers that are engageable with the diffuser plate".

Claim 10 is directed to an optical reader comprising: a mounting frame, said mounting frame including: a back plate; and four sidewalls extending outwards from said back plate; wherein said back plate and said four side walls define an interior volume; and wherein said back plate defines a plurality of openings; a printed circuit board coupled to said back plate, wherein said printed circuit board is external to said interior volume; an image sensor mounted on said printed circuit board, said image sensor disposed such that the field of view of said image sensor faces said interior volume; a plurality of light emitting diodes disposed

within said interior volume, said plurality of light emitting diodes mounted on said printed circuit board; a control circuit for controlling the operation of said image sensor and said light source, said control circuit disposed on said printed circuit board, said control circuit coupled to said light source and said image sensor; a signal processing circuit disposed to receive an electrical signal from said image sensor, said signal processing circuit mounted on said printed circuit board; an image capture circuit adapted to receive the electrical signal from said signal processing circuit and store said electrical signal, said image capture circuit mounted on said printed circuit board; and an image recognition circuit coupled to said image capture circuit, said image recognition circuit mounted on said printed circuit board.

Regarding independent claim 10, claim 10 is believed to be allowable for the same reasons as stated by applicants with regard to claim 1. At least three of the claim 10 limitations do not appear anywhere in the rejection. Claim 10 calls for a "signal processing circuit". The rejection does not consider a "signal processing circuit" limitation. Claim 10 also calls for an "image capture circuit". The rejection does not consider an "image capture circuit". Claim 10 also calls for a "control circuit". The rejection does not consider a "control circuit". With respect to independent claim 10, the Examiner has not found all of the limitations of the claim in the cited references. Without an indication of all of the limitations of the claim, an obviousness rejection is improper. Therefore applicants respectfully traverse the rejection.

Moreover, with respect to claim 10, the missing limitations and other components are disposed on a single common circuit board. Moreover, with respect to claim 10, the missing limitations and other components are disposed on a single common circuit board.

O'Hagan discloses that his elements are mounted on four circuit boards, not a single circuit board as claimed when interpreted in lights of applicants' disclosure. (Office Action, paragraph 5).

As the Examiner states, O'Hagan discloses and teaches the conventional use of multiple circuit boards.

As previously discussed in detail with regard to claim 1, applicants are unable to find any reference whatsoever to a single board code reader in Bunte.

When a rejection is made based on obviousness and a reference is complex and shows or describes inventions other than that claimed by the applicant, *the particular part of the reference relied upon must be designated as nearly as practicable.* (emphasis added) 37 CFR §1.104(c)(2). The Examiner relies on the alleged teaching of Bunte relating to a bar code reader including the limitations of claim 10 on a common PCB in maintaining that Bunte is combinable with O'Hagan; yet, contrary to the express provisions of 37 CFR §1.104(c)(2) makes no effort to specifically designate the purported section of Bunte relating to a bar code reader including the limitations of claim 10 on a common PCB.

If the Examiner wishes to continue this rejection of claim 10, the Examiner is respectfully requested to specifically point out the section of Bunte, alleged to be present, relating to a bar code reader including the limitations of claim 10 on a common PCB. If the Examiner cannot designate such a teaching in Bunte, the Examiner is respectfully requested to withdraw the rejection of claim 10 over the combination of O'Hagan and Bunte.

Regarding claim 11, since dependent claim 11 incorporates the limitations of the claim from which it depends, claim 11 is also not rendered obvious by the references for the same reasons as stated with respect to claim 10. That is, claim 11 is believed allowable at least for the reason that it depends from an allowable base claim.

Claim 11 is also believed allowable for reasons in addition to its dependency on claim 10. Claim 11 calls for the optical reader of claim 10 wherein the reader further including a receive optics lens assembly coupled to said back plate. The Examiner has shown no such structure as disclosed in either O'Hagan or Bunte. Therefore neither O'Hagan nor Bunte render claim 11 obvious.

When a rejection is made based on obviousness and a reference is complex and shows or describes inventions other than that claimed by the applicant, *the particular part of the reference relied upon must be designated as nearly as practicable.* (emphasis added) 37 CFR §1.104(c)(2). The Examiner relies on the alleged teaching of Bunte or O'Hagan relating to

a reader of claim 10, "further including a receive optics lens assembly coupled to said back plate" in maintaining that Bunte is combinable with O'Hagan; yet, contrary to the express provisions of 37 CFR §1.104(c)(2) makes no effort to specifically designate the purported section of Bunte or O'Hagan relating to a reader of claim 10, "further including a receive optics lens assembly coupled to said back plate".

If the Examiner wishes to continue this rejection of claim 11, the Examiner is respectfully requested to specifically point out the section of Bunte or O'Hagan, alleged to be present, relating to a reader of claim 11, "further including a receive optics lens assembly coupled to said back plate". If the Examiner cannot designate such a teaching in Bunte or O'Hagan, the Examiner is respectfully requested to withdraw the rejection of claim 11 over the combination of O'Hagan and Bunte.

Regarding claim 12, since dependent claim 12 incorporates the limitations of the claim from which it depends, claim 12 is also not rendered obvious by the references for the same reasons as stated with respect to claims 10 and 11. That is, claim 12 is believed allowable at least for the reason that it depends from an allowable base claim.

Claim 12 is also believed allowable for reasons in addition to its dependency on claims 10 and 11. Claim 12 calls for the optical reader of claim 12 further including: a diffuser plate engageable with at least two of said four side walls; and an aiming lens aperture plate disposed between said diffuser plate and said back plate. The Examiner has not shown that either O'Hagan or Bunte disclose or teach a diffuser plate, an aiming lens aperture plate, and a back plate. Therefore neither O'Hagan nor Bunte render claim 12 obvious.

When a rejection is made based on obviousness and a reference is complex and shows or describes inventions other than that claimed by the applicant, *the particular part of the reference relied upon must be designated as nearly as practicable.* (emphasis added) 37 CFR §1.104(c)(2). The Examiner relies on the alleged teaching of Bunte or O'Hagan relating to an optical reader of claim 12 further including: a diffuser plate engageable with at least two

of said four side walls; and an aiming lens aperture plate disposed between said diffuser plate and said back plate in maintaining that Bunte is combinable with O'Hagan; yet, contrary to the express provisions of 37 CFR §1.104(c)(2) makes no effort to specifically designate the purported section of Bunte or O'Hagan relating to an optical reader of claim 12 further including: a diffuser plate engageable with at least two of said four side walls; and an aiming lens aperture plate disposed between said diffuser plate and said back plate.

If the Examiner wishes to continue this rejection of claim 13, the Examiner is respectfully requested to specifically point out the section of Bunte or O'Hagan, alleged to be present, relating to an optical reader of claim 12 further including: a diffuser plate engageable with at least two of said four side walls; and an aiming lens aperture plate disposed between said diffuser plate and said back plate. If the Examiner cannot designate such a teaching in Bunte or O'Hagan, the Examiner is respectfully requested to withdraw the rejection of claim 12 over the combination of O'Hagan and Bunte.

Claim 13 calls for the optical reader of claim 12 wherein said image sensor is a solid state image sensor and said back plate defines a recess for receiving said solid state image sensor. The Examiner, while making no reference to claim 12, appears to address one of the limitations of this claim at the end of paragraph 5:

Mounting "fingers" remain old and well known, as are "recesses" and alignment means in electronic equipment enclosing circuit boards. It would have been obvious to one of ordinary skill in the art at the time of the invention to mount the board of O'Hagan using mounting "fingers" and providing "recesses" for alignment in the housing of O'Hagan. (Office Action, paragraph 5).

The Examiner's conclusory statement that a limitation including "fingers" or "recesses" is "well known" is not an acceptable substitute for finding the limitation in the prior art. Applicant's challenge this assertion as improper and request that the statement be supported by an adequate showing of the limitation in the prior art. (Applicant Challenges, MPEP §2144.03 C). An important error regarding the Examiner's assertion is that the limitation is to "resilient fingers that are engageable with the diffuser plate". Mere reference to the word "fingers" conjures an association with a great variety of dictionary definitions of

the word, many having nothing whatsoever to do with any of the applicant's claim limitations. In fact, the assertion regarding the word finger might refer to a meaning of the word that has nothing to do with the instant claim limitation. Therefore applicants respectfully demand that the Examiner produce authority in the form of prior art regarding to any assertion pertaining to "said back plate defines a recess for receiving said solid state image sensor". Moreover, neither O'Hagan nor Bunte are believed to disclose or teach a back plate defining a recess for receiving said solid state image sensor. Therefore neither O'Hagan nor Bunte render claim 13 obvious.

Regarding claim 14, since dependent claim 14 incorporates the limitations of the claim from which it depends, claim 14 is also not rendered obvious by the references for the same reasons as stated with respect to claims 10-12. That is, claim 14 is believed allowable at least for the reason that it depends from an allowable base claim.

Claim 14 calls for optical reader of claim 12 wherein at least one of said at least two of said at least four sidewalls includes a resilient finger engageable with said diffuser plate. The Examiner, while making no reference to claim 14, appears to address one of the limitations of this claim at the end of paragraph 5:

Mounting "fingers" remain old and well known, as are "recesses" and alignment means in electronic equipment enclosing circuit boards. It would have been obvious to one of ordinary skill in the art at the time of the invention to mount the board of O'Hagan using mounting "fingers" and providing "recesses" for alignment in the housing of O'Hagan. (Office Action, paragraph 5).

The Examiner's conclusory statement that a limitation including "fingers" or "recesses" is "well known" is not an acceptable substitute for finding the limitation in the prior art. Applicant's challenge this assertion as improper and request that the statement be supported by an adequate showing of the limitation in the prior art. (Applicant Challenges, MPEP §2144.03 C). An important error regarding the Examiner's assertion is that the limitation is to "resilient fingers that are engageable with the diffuser plate". Mere reference to the word "fingers" conjures an association with a great variety of dictionary definitions of the word, many having nothing whatsoever to do with any of the applicant's claim limitations. In fact, the assertion regarding the word finger might refer to a meaning of the

word that has nothing to do with the instant claim limitation. Therefore applicants respectfully demand that the Examiner produce authority in the form of prior art regarding to any assertion pertaining to “resilient fingers that are engageable with the diffuser plate”.

Claim 15 is directed to an optical reader comprising: a mounting frame, said mounting frame including: a back plate; and four sidewalls extending outwards from said back plate; wherein said back plate and said four side walls define an interior volume; and wherein said back plate defines a plurality of openings; a printed circuit board coupled to said back plate, wherein said printed circuit board is external to said interior volume; an image sensor mounted on said printed circuit board, said image sensor disposed such that the field of view of said image sensor faces said interior volume; a plurality of light emitting diodes disposed within said interior volume, said plurality of light emitting diodes mounted on said printed circuit board; a control circuit for controlling the operation of said image sensor and said light source, said control circuit disposed on said printed circuit board, said control circuit coupled to said light source and said image sensor; a signal processing circuit disposed to receive an electrical signal from said image sensor, said signal processing circuit mounted on said printed circuit board; an image capture circuit adapted to receive the electrical signal from said signal processing circuit and store said electrical signal, said image capture circuit mounted on said printed circuit board; and an image recognition circuit coupled to said image capture circuit, said image recognition circuit mounted on said printed circuit board; wherein the receive axis of said image sensor is substantially perpendicular to said printed circuit board.

Regarding independent claim 15, claim 15 is believed to be allowable for the same reasons as stated by applicants with regard to claim 1. At least three of the claim 15 limitations do not appear anywhere in the rejection. Claim 15 calls for a “signal processing circuit”. The rejection does not consider a “signal processing circuit” limitation. Claim 15 also calls for an “image capture circuit”. The rejection does not consider an “image capture circuit”. Claim 15 also calls for an “a back plate”. The rejection does not consider a “back plate”. With respect to independent claim 15, the Examiner has not found all of the limitations of the claim in the cited references. Without an indication of all of the limitations of the claim, an obviousness rejection is improper. Therefore applicants respectfully traverse the rejection.

Moreover, with respect to claim 15, the missing limitations of “signal processing circuit”, “image capture circuit”, and other components are disposed on a single common circuit board.

O'Hagan discloses that his elements are mounted on four circuit boards, not a single circuit board as claimed when interpreted in lights of applicants' disclosure. (Office Action, paragraph 5).

As the Examiner states, O'Hagan discloses and teaches the conventional use of multiple circuit boards.

As previously discussed in detail with regard to claim 1, applicants are unable to find any reference whatsoever to a single board code reader in Bunte.

When a rejection is made based on obviousness and a reference is complex and shows or describes inventions other than that claimed by the applicant, *the particular part of the reference relied upon must be designated as nearly as practicable.* (emphasis added) 37 CFR §1.104(c)(2). The Examiner relies on the alleged teaching of Bunte relating to a bar code reader including the limitations of claim 15 on a common PCB in maintaining that Bunte is combinable with O'Hagan; yet, contrary to the express provisions of 37 CFR §1.104(c)(2) makes no effort to specifically designate the purported section of Bunte relating to a bar code reader including the limitations of claim 15 on a common PCB.

If the Examiner wishes to continue this rejection of claim 15, the Examiner is respectfully requested to specifically point out the section of Bunte, alleged to be present, relating to a bar code reader including the limitations of claim 15 on a common PCB. If the Examiner cannot designate such a teaching in Bunte, the Examiner is respectfully requested to withdraw the rejection of claim 15 over the combination of O'Hagan and Bunte.

Regarding claim 16, since dependent claim 16 incorporates the limitations of the claim from which it depends, claim 16 is also not rendered obvious by the references for the same reasons as stated with respect to claims 15. That is, claim 16 is believed allowable at least for the reason that it depends from an allowable base claim.

Regarding claim 17, since dependent claim 17 incorporates the limitations of the claim from which it depends, claim 17 is also not rendered obvious by the references for the same reasons as stated with respect to claims 15 and 16. That is, claim 17 is believed allowable at least for the reason that it depends from an allowable base claim.

Claim 17 is also believed allowable for reasons in addition to its dependency on claims 15 and 16. Claim 17 calls for the optical reader of claim 16 further comprising a diffuser plate disposed to receive at least a portion of the light emitted from said plurality of light emitting diodes. The Examiner has failed to show that either O'Hagan or Bunte disclose or teach a diffuser plate. Therefore neither O'Hagan nor Bunte render claim 17 obvious.

When a rejection is made based on obviousness and a reference is complex and shows or describes inventions other than that claimed by the applicant, *the particular part of the reference relied upon must be designated as nearly as practicable.* (emphasis added) 37 CFR §1.104(c)(2). The Examiner relies on the alleged teaching of Bunte or O'Hagan relating to an optical reader of claim 16 further comprising a diffuser plate disposed to receive at least a portion of the light emitted from said plurality of light emitting diodes in maintaining that Bunte is combinable with O'Hagan; yet, contrary to the express provisions of 37 CFR §1.104(c)(2) makes no effort to specifically designate the purported section of Bunte or O'Hagan relating to an optical reader of claim 16 further comprising a diffuser plate disposed to receive at least a portion of the light emitted from said plurality of light emitting diodes.

If the Examiner wishes to continue this rejection of claim 17, the Examiner is respectfully requested to specifically point out the section of Bunte or O'Hagan, alleged to be present, relating to an optical reader of claim 16 further comprising a diffuser plate disposed to receive at least a portion of the light emitted from said plurality of light emitting diodes. If the Examiner cannot designate such a teaching in Bunte or O'Hagan, the Examiner is respectfully requested to withdraw the rejection of claim 17 over the combination of O'Hagan and Bunte.

Regarding claim 18, since dependent claim 18 incorporates the limitations of the claim from which it depends, claim 18 is also not rendered obvious by the references for the same reasons as stated with respect to claims 15-17. That is, claim 18 is believed allowable at least for the reason that it depends from an allowable base claim.

Claim 18 is also believed allowable for reasons in addition to its dependency on claims 15-17. Claim 18 calls for the optical reader of claim 15 further including a diffuser plate coupled to said mounting frame, wherein said diffuser plate is disposed to receive at least a portion of the light emitted by said plurality of light emitting diodes. The Examiner has failed to show that either O'Hagan or Bunte disclose or teach a diffuser plate. Therefore neither O'Hagan nor Bunte render claim 18 obvious.

When a rejection is made based on obviousness and a reference is complex and shows or describes inventions other than that claimed by the applicant, *the particular part of the reference relied upon must be designated as nearly as practicable.* (emphasis added) 37 CFR §1.104(c)(2). The Examiner relies on the alleged teaching of Bunte or O'Hagan relating to an optical reader of claim 15 further including a diffuser plate coupled to said mounting frame, wherein said diffuser plate is disposed to receive at least a portion of the light emitted by said plurality of light emitting diodes in maintaining that Bunte is combinable with O'Hagan; yet, contrary to the express provisions of 37 CFR §1.104(c)(2) makes no effort to specifically designate the purported section of Bunte or O'Hagan relating to an optical reader of claim 15 further including a diffuser plate coupled to said mounting frame, wherein said diffuser plate is disposed to receive at least a portion of the light emitted by said plurality of light emitting diodes.

If the Examiner wishes to continue this rejection of claim 18, the Examiner is respectfully requested to specifically point out the section of Bunte or O'Hagan, alleged to be present, relating to an optical reader of claim 15 further including a diffuser plate coupled to said mounting frame, wherein said diffuser plate is disposed to receive at least a portion of the light emitted by said plurality of light emitting diodes. If the Examiner cannot designate

such a teaching in Bunte or O'Hagan, the Examiner is respectfully requested to withdraw the rejection of claim 18 over the combination of O'Hagan and Bunte.

Regarding claim 19, since dependent claim 19 incorporates the limitations of the claim from which it depends, claim 19 is also not rendered obvious by the references for the same reasons as stated with respect to claims 15-18. That is, claim 19 is believed allowable at least for the reason that it depends from an allowable base claim.

Claim 19 is also believed allowable for reasons in addition to its dependency on claims 15-18. Claim 19 calls for the optical reader of claim 18 further including an aperture plate disposed between said diffuser plate and said plurality of light emitting diodes, wherein said aperture plate restricts the amount of light reaching said diffuser plate from said plurality of light emitting diodes. The Examiner has failed to show that either O'Hagan or Bunte disclose or teach a plurality of light emitting diodes. Therefore neither O'Hagan nor Bunte render claim 19 obvious.

When a rejection is made based on obviousness and a reference is complex and shows or describes inventions other than that claimed by the applicant, *the particular part of the reference relied upon must be designated as nearly as practicable.* (emphasis added) 37 CFR §1.104(c)(2). The Examiner relies on the alleged teaching of Bunte or O'Hagan relating to an optical reader of claim 18 further including an aperture plate disposed between said diffuser plate and said plurality of light emitting diodes, wherein said aperture plate restricts the amount of light reaching said diffuser plate from said plurality of light emitting diodes in maintaining that Bunte is combinable with O'Hagan; yet, contrary to the express provisions of 37 CFR §1.104(c)(2) makes no effort to specifically designate the purported section of Bunte or O'Hagan relating to an optical reader of claim 18 further including an aperture plate disposed between said diffuser plate and said plurality of light emitting diodes, wherein said aperture plate restricts the amount of light reaching said diffuser plate from said plurality of light emitting diodes.

If the Examiner wishes to continue this rejection of claim 19, the Examiner is respectfully requested to specifically point out the section of Bunte or O'Hagan, alleged to be present, relating to an optical reader of claim 18 further including an aperture plate disposed between said diffuser plate and said plurality of light emitting diodes, wherein said aperture plate restricts the amount of light reaching said diffuser plate from said plurality of light emitting diodes. If the Examiner cannot designate such a teaching in Bunte or O'Hagan, the Examiner is respectfully requested to withdraw the rejection of claim 19 over the combination of O'Hagan and Bunte.

Regarding claim 20, since dependent claim 20 incorporates the limitations of the claim from which it depends, claim 20 is also not rendered obvious by the references for the same reasons as stated with respect to claims 15-19. That is, claim 20 is believed allowable at least for the reason that it depends from an allowable base claim.

Regarding claim 21, since dependent claim 21 incorporates the limitations of the claim from which it depends, claim 21 is also not rendered obvious by the references for the same reasons as stated with respect to claims 15-20. That is, claim 21 is believed allowable at least for the reason that it depends from an allowable base claim.

Regarding claim 22, since dependent claim 22 incorporates the limitations of the claim from which it depends, claim 22 is also not rendered obvious by the references for the same reasons as stated with respect to claims 15-21. That is, claim 22 is believed allowable at least for the reason that it depends from an allowable base claim.

Claim 22 is also believed allowable for reasons in addition to its dependency on claims 15-21. Claim 22 calls for the optical reader of claim 21 wherein said at least one aiming light emitting diode and said aperture plate are adapted to generate a horizontal aiming pattern. The Examiner has failed to show that either O'Hagan or Bunte disclose or teach at least one aiming light emitting diode and said aperture plate are adapted to generate a horizontal aiming pattern. Therefore neither O'Hagan nor Bunte render claim 22 obvious.

When a rejection is made based on obviousness and a reference is complex and shows or describes inventions other than that claimed by the applicant, *the particular part of the reference relied upon must be designated as nearly as practicable.* (emphasis added) 37 CFR §1.104(c)(2). The Examiner relies on the alleged teaching of Bunte or O'Hagan relating to an optical reader of claim 21 wherein said at least one aiming light emitting diode and said aperture plate are adapted to generate a horizontal aiming pattern in maintaining that Bunte is combinable with O'Hagan; yet, contrary to the express provisions of 37 CFR §1.104(c)(2) makes no effort to specifically designate the purported section of Bunte or O'Hagan relating to an optical reader of claim 21 wherein said at least one aiming light emitting diode and said aperture plate are adapted to generate a horizontal aiming pattern.

If the Examiner wishes to continue this rejection of claim 22, the Examiner is respectfully requested to specifically point out the section of Bunte or O'Hagan, alleged to be present, relating to an optical reader of claim 21 wherein said at least one aiming light emitting diode and said aperture plate are adapted to generate a horizontal aiming pattern. If the Examiner cannot designate such a teaching in Bunte or O'Hagan, the Examiner is respectfully requested to withdraw the rejection of claim 22 over the combination of O'Hagan and Bunte.

Regarding claim 23, since dependent claim 23 incorporates the limitations of the claim from which it depends, claim 23 is also not rendered obvious by the references for the same reasons as stated with respect to claims 15-22. That is, claim 22 is believed allowable at least for the reason that it depends from an allowable base claim.

Claim 23 is also believed allowable for reasons in addition to its dependency on claims 15-22. Claim 23 calls for the optical reader of claim 22 wherein said horizontal aiming pattern includes a horizontal line of light. The Examiner has failed to show that either O'Hagan or Bunte disclose or teach at least one aiming light emitting diode and said aperture plate are adapted to generate a horizontal aiming pattern wherein the horizontal aiming pattern includes a horizontal line of light. Therefore neither O'Hagan nor Bunte render claim 23 obvious.

When a rejection is made based on obviousness and a reference is complex and shows or describes inventions other than that claimed by the applicant, *the particular part of the reference relied upon must be designated as nearly as practicable*. (emphasis added) 37 CFR §1.104(c)(2). The Examiner relies on the alleged teaching of Bunte or O'Hagan relating to an optical reader of claim 22 wherein said horizontal aiming pattern includes a horizontal line of light in maintaining that Bunte is combinable with O'Hagan; yet, contrary to the express provisions of 37 CFR §1.104(c)(2) makes no effort to specifically designate the purported section of Bunte or O'Hagan relating to an optical reader of claim 22 wherein said horizontal aiming pattern includes a horizontal line of light.

If the Examiner wishes to continue this rejection of claim 23, the Examiner is respectfully requested to specifically point out the section of Bunte or O'Hagan, alleged to be present, relating to an optical reader of claim 22 wherein said horizontal aiming pattern includes a horizontal line of light. If the Examiner cannot designate such a teaching in Bunte or O'Hagan, the Examiner is respectfully requested to withdraw the rejection of claim 23 over the combination of O'Hagan and Bunte.

Regarding claim 24, since dependent claim 24 incorporates the limitations of the claim from which it depends, claim 24 is also not rendered obvious by the references for the same reasons as stated with respect to claims 15-22. That is, claim 24 is believed allowable at least for the reason that it depends from an allowable base claim.

Claim 24 is also believed allowable for reasons in addition to its dependency on claims 15-22. Claim 24 calls for the optical reader of claim 22 wherein said horizontal aiming pattern consists of a horizontal line of light. The Examiner has failed to show that either O'Hagan or Bunte disclose or teach at least one aiming light emitting diode and said aperture plate are adapted to generate a horizontal aiming pattern wherein said horizontal aiming pattern consists of a horizontal line of light. Therefore neither O'Hagan nor Bunte render claim 24 obvious.

When a rejection is made based on obviousness and a reference is complex and shows or describes inventions other than that claimed by the applicant, *the particular part of the reference relied upon must be designated as nearly as practicable.* (emphasis added) 37 CFR §1.104(c)(2). The Examiner relies on the alleged teaching of Bunte or O'Hagan relating to an optical reader of claim 22 wherein said horizontal aiming pattern consists of a horizontal line of light in maintaining that Bunte is combinable with O'Hagan; yet, contrary to the express provisions of 37 CFR 1.104(c)(2) makes no effort to specifically designate the purported section of Bunte or O'Hagan relating to an optical reader of claim 22 wherein said horizontal aiming pattern consists of a horizontal line of light.

If the Examiner wishes to continue this rejection of claim 24, the Examiner is respectfully requested to specifically point out the section of Bunte or O'Hagan, alleged to be present, relating to an optical reader of claim 22 wherein said horizontal aiming pattern consists of a horizontal line of light. If the Examiner cannot designate such a teaching in Bunte or O'Hagan, the Examiner is respectfully requested to withdraw the rejection of claim 24 over the combination of O'Hagan and Bunte.

Regarding claim 25, since dependent claim 25 incorporates the limitations of the claim from which it depends, claim 25 is also not rendered obvious by the references for the same reasons as stated with respect to claims 15-20. That is, claim 25 is believed allowable at least for the reason that it depends from an allowable base claim.

Claim 26 is directed to an optical reader comprising: a mounting frame, said mounting frame including: a back plate; and four sidewalls extending outwards from said back plate; wherein said back plate and said four side walls define an interior volume; wherein said back plate includes an exterior surface and wherein said back plate defines a plurality of openings; a printed circuit board coupled to said external surface; an image sensor mounted on said printed circuit board, said image sensor disposed such that the field of view of said image sensor faces said interior volume; a plurality of light emitting diodes disposed within said interior volume, said plurality of light emitting diodes mounted on said printed circuit board; illumination optics disposed proximate to said plurality of light emitting diodes; a control circuit for controlling the operation of said image sensor and said light source, said control circuit disposed on said printed circuit board, said control circuit coupled to said light source and said image sensor; a signal processing circuit disposed to receive an electrical signal from said image sensor, said signal processing circuit mounted on said printed circuit board;

an image capture circuit adapted to receive the electrical signal from said signal processing circuit and store said electrical signal, said image capture circuit mounted on said printed circuit board; and an image recognition circuit coupled to said image capture circuit, said image recognition circuit mounted on said printed circuit board; wherein the receive axis of said image sensor is substantially perpendicular to said printed circuit board.

Regarding independent claim 26, claim 26 is believed to be allowable for the same reasons as stated by applicants with regard to claim 1. At least four of the claim 26 limitations do not appear anywhere in the rejection. Claim 26 calls for a "signal processing circuit". The rejection does not consider a "signal processing circuit" limitation. Claim 26 also calls for an "image capture circuit". The rejection does not consider an "image capture circuit". Claim 26 also calls for an "an image recognition circuit". The rejection does not consider an "image recognition circuit". Claim 26 also calls for an "a back plate". The rejection does not consider a "back plate". With respect to independent claim 26, the Examiner has not found all of the limitations of the claim in the cited references. Without an indication of all of the limitations of the claim, an obviousness rejection is improper. Therefore applicants respectfully traverse the rejection.

Moreover, with respect to claim 26, the missing limitations of "signal processing circuit", "image capture circuit", "image recognition circuit" and other components are disposed on a single common circuit board.

O'Hagan discloses that his elements are mounted on four circuit boards, not a single circuit board as claimed when interpreted in lights of applicants' disclosure. (Office Action, paragraph 5).

As the Examiner states, O'Hagan discloses and teaches the conventional use of multiple circuit boards.

As previously discussed in detail with regard to claim 1, applicants are unable to find any reference whatsoever to a single board code reader in Bunte.

When a rejection is made based on obviousness and a reference is complex and shows or describes inventions other than that claimed by the applicant, *the particular part of the reference relied upon must be designated as nearly as practicable.* (emphasis added) 37 CFR §1.104(c)(2). The Examiner relies on the alleged teaching of Bunte relating to a bar code reader including the limitations of claim 26 on a common PCB in maintaining that Bunte is combinable with O'Hagan; yet, contrary to the express provisions of 37 CFR 1.104(c)(2) makes no effort to specifically designate the purported section of Bunte relating to a bar code reader including the limitations of claim 26 on a common PCB.

If the Examiner wishes to continue this rejection of claim 26, the Examiner is respectfully requested to specifically point out the section of Bunte, alleged to be present, relating to a bar code reader including the limitations of claim 26 on a common PCB. If the Examiner cannot designate such a teaching in Bunte, the Examiner is respectfully requested to withdraw the rejection of claim 26 over the combination of O'Hagan and Bunte.

Claim 27 calls for the optical reader of claim 26, wherein said exterior surface defines a receptacle for receiving said image sensor. Since dependent claim 27 incorporates the limitations of the claim from which it depends (claim 26) claim 27 is also not rendered obvious by the references for the same reasons as stated with respect to claims 26. That is, claim 27 is believed allowable at least for the reason that it depends from an allowable base claim.

Claim 28 calls for the optical reader of claim 27, wherein said image sensor includes a lens assembly. Since dependent claim 28 incorporates the limitations of the claims from which it depends (claims 26 and 27) claim 28 is also not rendered obvious by the references for the same reasons as stated with respect to claims 26. That is, claim 28 is believed allowable at least for the reason that it depends from an allowable base claim.

Claim 29 calls for the optical reader of claim 28 wherein at least one of the plurality of openings defined by said back plate is disposed to receive said lens assembly. Since dependent claim 28 incorporates the limitations of the claims from which it depends (claims

26-28) claim 29 is also not rendered obvious by the references for the same reasons as stated with respect to claims 26. That is, claim 28 is believed allowable at least for the reason that it depends from an allowable base claim.

Claim 30 calls for the optical reader of claim 29 wherein at least a portion of said lens assembly is disposed within said interior volume. Since dependent claim 30 incorporates the limitations of the claims from which it depends (claims 26-29) claim 30 is also not rendered obvious by the references for the same reasons as stated with respect to claims 26. That is, claim 30 is believed allowable at least for the reason that it depends from an allowable base claim.

Claim 31 calls for the optical reader of claim 30 wherein each of said plurality of light emitting diodes includes a plurality of electrical leads. Since dependent claim 31 incorporates the limitations of the claims from which it depends (claims 26-30) claim 31 is also not rendered obvious by the references for the same reasons as stated with respect to claims 26. That is, claim 31 is believed allowable at least for the reason that it depends from an allowable base claim.

Claim 32 calls for the optical reader of claim 31 wherein the light emitting portion of each of said plurality of light emitting diodes is disposed within said interior volume; and wherein said plurality of electrical leads for each of said plurality of light emitting diodes extend from said interior volume through at least a portion of said plurality of openings defined by said back plate thereby allowing each of said plurality of electrical leads to be coupled to a respective electrical contact disposed on said printed circuit board. Since dependent claim 32 incorporates the limitations of the claims from which it depends (claims 26-31) claim 32 is also not rendered obvious by the references for the same reasons as stated with respect to claims 26. That is, claim 32 is believed allowable at least for the reason that it depends from an allowable base claim.

Claim 33 calls for the optical reader of claim 26 wherein said illumination optics include: an aperture plate; and a diffuser plate; wherein said aperture plate includes a plurality of arcuate surfaces; wherein each of said arcuate surfaces includes a surface having

compound curvature; and wherein each of said arcuate surfaces defines a substantially rectangular aperture. Since dependent claim 33 incorporates the limitations of the claim from which it depends (claim 26) claim 33 is also not rendered obvious by the references for the same reasons as stated with respect to claims 26. That is, claim 33 is believed allowable at least for the reason that it depends from an allowable base claim.

Claim 33 is also believed allowable for reasons in addition to its dependency on claim 26. Claim 33 calls for an aperture plate; and a diffuser plate; wherein the aperture plate includes a plurality of arcuate surfaces; wherein each of the arcuate surfaces includes a surface having compound curvature; and wherein each of the arcuate surfaces defines a substantially rectangular aperture. The Examiner does not address a diffuser plate and an aperture plate having these features. The Examiner has failed to show that either O'Hagan or Bunte disclose or teach a diffuser plate and an aperture plate having these features. Therefore neither O'Hagan nor Bunte render claim 33 obvious.

When a rejection is made based on obviousness and a reference is complex and shows or describes inventions other than that claimed by the applicant, *the particular part of the reference relied upon must be designated as nearly as practicable.* (emphasis added) 37 CFR §1.104(c)(2). The Examiner relies on the alleged teaching of Bunte or O'Hagan relating to an aperture plate; and a diffuser plate; wherein the aperture plate includes a plurality of arcuate surfaces; wherein each of the arcuate surfaces includes a surface having compound curvature; and wherein each of the arcuate surfaces defines a substantially rectangular aperture in maintaining that Bunte is combinable with O'Hagan; yet, contrary to the express provisions of 37 CFR 1.104(c)(2) makes no effort to specifically designate the purported section of Bunte or O'Hagan relating to an aperture plate; and a diffuser plate; wherein the aperture plate includes a plurality of arcuate surfaces; wherein each of the arcuate surfaces includes a surface having compound curvature; and wherein each of the arcuate surfaces defines a substantially rectangular aperture.

If the Examiner wishes to continue this rejection of claim 33, the Examiner is respectfully requested to specifically point out the section of Bunte or O'Hagan, alleged to be

present, relating to an aperture plate; and a diffuser plate; wherein the aperture plate includes a plurality of arcuate surfaces; wherein each of the arcuate surfaces includes a surface having compound curvature; and wherein each of the arcuate surfaces defines a substantially rectangular aperture. If the Examiner cannot designate such a teaching in Bunte or O'Hagan, the Examiner is respectfully requested to withdraw the rejection of claim 33 over the combination of O'Hagan and Bunte.

Claim 34 calls for the optical reader of claim 33 wherein at least two of said four side walls include resilient members adapted for coupling said diffuser plate to said mounting frame. Since dependent claim 34 incorporates the limitations of the claim from which it depends (claims 26 and 33) claim 34 is also not rendered obvious by the references for the same reasons as stated with respect to claims 26. That is, claim 34 is believed allowable at least for the reason that it depends from an allowable base claim.

Claim 34 is also believed allowable for reasons in addition to its dependency on claim 26. Claim 33 calls for the optical reader of claim 33 wherein at least two of said four side walls include resilient members adapted for coupling said diffuser plate to said mounting frame. The Examiner does not address the limitation of resilient members adapted for coupling said diffuser plate to said mounting frame. The Examiner has failed to show that either O'Hagan or Bunte disclose or teach a diffuser plate to a mounting frame having these features. Therefore neither O'Hagan nor Bunte render claim 34 obvious.

When a rejection is made based on obviousness and a reference is complex and shows or describes inventions other than that claimed by the applicant, *the particular part of the reference relied upon must be designated as nearly as practicable.* (emphasis added) 37 CFR §1.104(c)(2). The Examiner relies on the alleged teaching of Bunte or O'Hagan relating to an optical reader of claim 33 wherein at least two of said four side walls include resilient members adapted for coupling said diffuser plate to said mounting frame in maintaining that Bunte is combinable with O'Hagan; yet, contrary to the express provisions of 37 CFR §1.104(c)(2) makes no effort to specifically designate the purported section of Bunte or

O'Hagan relating to an optical reader of claim 33 wherein at least two of said four side walls include resilient members adapted for coupling said diffuser plate to said mounting frame.

If the Examiner wishes to continue this rejection of claim 34, the Examiner is respectfully requested to specifically point out the section of Bunte or O'Hagan, alleged to be present, relating to an optical reader of claim 33 wherein at least two of said four side walls include resilient members adapted for coupling said diffuser plate to said mounting frame. If the Examiner cannot designate such a teaching in Bunte or O'Hagan, the Examiner is respectfully requested to withdraw the rejection of claim 34 over the combination of O'Hagan and Bunte.

Claim 35 is directed to An optical reader comprising: a mounting frame, said mounting frame including: a back plate; and four sidewalls extending outwards from said back plate; wherein said back plate and said four side walls define an interior volume; and wherein said back plate defines a plurality of openings; a printed circuit board coupled to said external surface; an image sensor mounted on said printed circuit board, said image sensor disposed such that the field of view of said image sensor faces said interior volume; imaging optics coupled to said image sensor, said imaging optics at least partially disposed within said interior volume; at least one illumination light emitting diode coupled to said printed circuit board wherein said at least one illumination light emitting diode is disposed within said interior volume; at least one aiming light emitting diode coupled to said printed circuit board wherein said at least one aiming light emitting diode is disposed within said interior volume; an aperture plate disposed proximate to said at least one illumination light emitting diode and said at least one aiming light emitting diode; a diffuser plate coupled to said mounting frame, wherein said aperture plate is disposed between said aperture plate and said mounting frame, wherein said diffuser plate applies a clamping force to said aperture plate thereby holding said aperture plate in a predetermined position; a control circuit for controlling the operation of said image sensor and said light source, said control circuit disposed on said printed circuit board, said control circuit coupled to said light source and said image sensor; a signal processing circuit disposed to receive an electrical signal from said image sensor, said signal processing circuit mounted on said printed circuit board; an image capture circuit adapted to receive the electrical signal from said signal processing circuit and store said electrical signal, said image capture circuit mounted on said printed circuit board; and an image recognition circuit coupled to said image capture circuit, said image recognition circuit mounted on said printed circuit board; wherein the receive axis of said image sensor is substantially perpendicular to said printed circuit board; wherein said aperture plate defines at least one opening for allowing light generated by said at least one illumination light emitting diode to pass through; and wherein said aperture plate defines at least one opening for allowing light generated by said at least one aiming light emitting diode to pass through.

Regarding claim 35, at least four of the claim 35 limitations do not appear anywhere in the rejection. Claim 35 calls for a “signal processing circuit”. The rejection does not consider a “signal processing circuit” limitation. Claim 35 also calls for an “image capture circuit”. The rejection does not consider an “image capture circuit”. Claim 35 also calls for an “image recognition circuit”. The rejection does not consider an “an image recognition circuit”. Claim 35 also calls for a “control circuit”. The rejection does not consider a “control circuit”. With respect to independent claim 35, the Examiner has not found all of the limitations of the claim in the cited references. Without an indication of all of the limitations of the claim, an obviousness rejection is improper. Therefore applicants respectfully traverse the rejection.

Moreover, with respect to claim 35, the missing limitations and other components are disposed on a single common circuit board.

O’Hagan discloses that his elements are mounted on four circuit boards, not a single circuit board as claimed when interpreted in lights of applicants’ disclosure. (Office Action, paragraph 5).

As the Examiner states, O’Hagan discloses and teaches the conventional use of multiple circuit boards.

As previously discussed in detail with regard to claim 1, applicants are unable to find any reference whatsoever to a single board code reader in Bunte.

When a rejection is made based on obviousness and a reference is complex and shows or describes inventions other than that claimed by the applicant, *the particular part of the reference relied upon must be designated as nearly as practicable.* (emphasis added) 37 CFR §1.104(c)(2). The Examiner relies on the alleged teaching of Bunte relating to a bar code reader including the limitations of claim 3 on a common PCB in maintaining that Bunte is combinable with O’Hagan; yet, contrary to the express provisions of 37 CFR §1.104(c)(2) makes no effort to specifically designate the purported section of Bunte relating to a bar code reader including the limitations of claim 35 on a common PCB.

If the Examiner wishes to continue this rejection of claim 35, the Examiner is respectfully requested to specifically point out the section of Bunte, alleged to be present, relating to a bar code reader including the limitations of claim 35 on a common PCB. If the Examiner cannot designate such a teaching in Bunte, the Examiner is respectfully requested to withdraw the rejection of claim 35 over the combination of O'Hagan and Bunte.

B. There is no suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. The Examiner cites to the combination O'Hagan and Bunte as rendering claims 1-35 obvious and then simply makes a conclusory statement in paragraph 5 that "It would have been obvious to one of ordinary skill in the art" to combine the references without giving any reason for the combination. The Examiner offers no indication of any suggestion, teaching, or motivation in either of the references that would cause one skilled in the art to combine them.

7. Conclusion

Applicants believe the pending claims of the above-captioned application are in allowable form and patentable over the prior art of record. The Examiner has not shown a combination of references that discloses all of the limitations of any of the claims nor has the Examiner indicated why the cited references should be combined to support such an obviousness rejection. Applicants respectfully request reconsideration of the pending claims 1-35 and new claims 36-38 and a prompt Notice of Allowance thereon. In the alternative, applicants request a clarification of all §103 (a) rejections in accordance with standard MPEP patent practice. Moreover, regarding the challenges to assertions of official notice made seemingly with respect to limitations in claims 9, 13 and 14, applicant's should be allowed to challenge the assertion in the next reply after the Office Action in which the common knowledge statement was made. Therefore applicants respectfully request with regard to the challenges to official notice, among other reasons presented herein, that in the event that all claims are not allowed, the next Office Action not be made final. (MPEP §2144.03 B).

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Amendment Dated April 1, 2005
Response to Office Action Dated December 2, 2004

Accordingly, in view of the above amendments and remarks, applicants believe all of the claims of the present application to be in condition for allowance and respectfully request reconsideration and passage to allowance of the application.

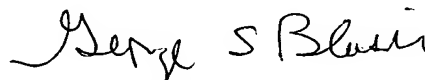
If the Examiner believes that contact with applicants' attorney would be advantageous toward the disposition of this case, the Examiner is herein requested to call applicants' representative at the phone number listed below.

The Commissioner is hereby authorized to charge any additional fees associated with this communication or credit any overpayment to deposit Account No. 50-0289.

Respectfully submitted,

WALL MARJAMA & BILINSKI LLP

Date: April 1, 2005



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